Small Business Innovation Research/Small Business Tech Transfer

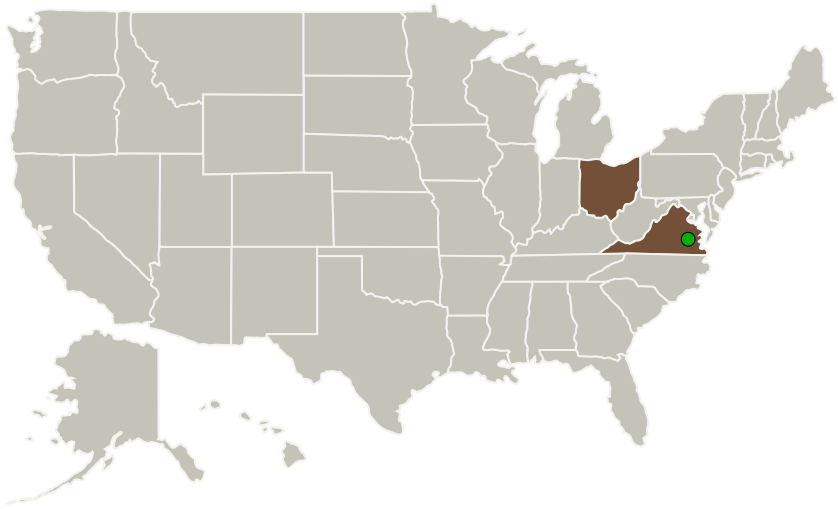
Hybrid Nanocomposites for Efficient Aerospace Structures, Phase II

Completed Technology Project (2016 - 2020)

Project Introduction

NASA's Advanced Air Vehicles program seeks to improve safety and efficiency through exploration of the value of hybrid composites, guiding utilization of the materials by industry. Cornerstone Research Group Inc. (CRG), University of Dayton Research Institute (UDRI), and NanoSperse LLC have formed a team of experts in the aerospace composites industry to demonstrate, financially justify, and quickly transition hybrid composites into commercial aircraft markets. In Phase I, the team demonstrated a scalable, qualifiable hybrid materials solution using stitched CNT yarns capable of exceeding the performance of toughened prepregs using infusion grade materials and compatible manufacturing methods. Phase II efforts will further validate the financial and functional viability of the hybrid composite system through identification of relevant applications, optimization of stitched laminate designs, evaluation of multifunctional properties, and scale-up of hybrid composite manufacturing methods enabling the fabrication and evaluation of a component prototype.

Primary U.S. Work Locations and Key Partners



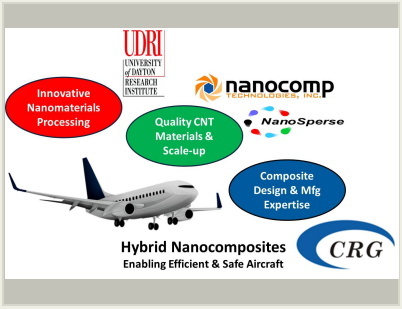


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Table of Contents

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Organizations Performing Work	Role	Type	Location
Cornerstone Research Group, Inc.	Lead Organization	Industry	Miamisburg, Ohio
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Primary U.S. Work Locations	
Ohio	Virginia

Images

Briefing Chart Image
Hybrid Nanocomposites for Efficient Aerospace Structures, Phase II *(https://techport.nasa.gov/image/131344)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Cornerstone Research Group, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

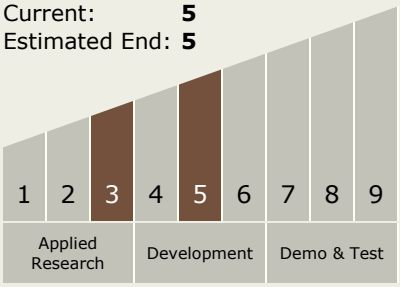
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Bryan M Pelley

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



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Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.1 Materials
    - TX12.1.1 Lightweight Structural Materials

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System